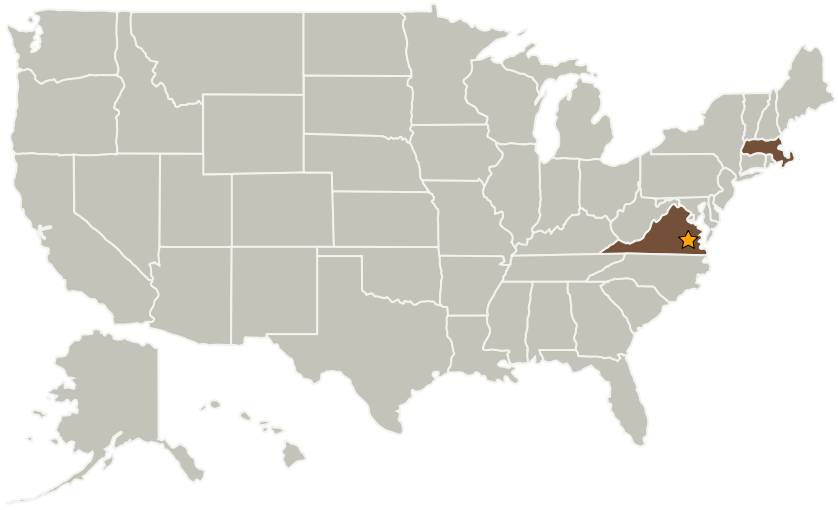
Optical Landing Hazard Sensor, Phase II

Completed Technology Project (2005 - 2008)

Project Introduction

Visidyne's Phase I effort has established through modeling and analysis that a unique concept for an active optical 3-D Imager (or Imaging LADAR) has high potential for successful application as a hazard avoidance sensor for use by NASA spacecraft during landing on planetary surfaces. The Landing Hazard Sensor promises to be highly cost-effective, utilizing efficient high-power laser diode technology and a gateable array of detectors to implement a sensor that provides range images to passive targets at relatively long range and over wide fields-of-regard. Further image processing determines terrain relief and gradients (identifying rocks and steep slopes) that may present impediments to landing. The spacecraft Guidance and Navigation Computer will guide the spacecraft to an obstacle free landing area by directing the engine thrust vector based upon Hazard Sensor data (as well as data from other sensors). During Phase II, a hardware and software prototype of the Landing Hazard Sensor will be designed, constructed and evaluated.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Visidyne, Inc.	Supporting Organization	Industry	Burlington, Massachusetts

Primary U.S. Work Locations	
Massachusetts	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.4 Vehicle Systems
    - TX09.4.4 Atmosphere and Surface Characterization